

Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (original) A biologically active peptide consisting essentially of the formula selected from:

- (a) X_{01} Val X_{02} Glu Ile Gln Leu Met His X_{03} X_{04} X_{05} X_{06} X_{07} (SEQ. ID. NO. 1);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12, or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c);

wherein:

X_{01} is an α -helix-stabilizing residue, Gly, Ser or Ala;

X_{02} is an α -helix-stabilizing residue, Ala or Ser;

X_{03} is Ala, Gln or Asn;

X_{04} is Arg, Har or Leu;

X_{05} is an α -helix stabilizing residue, Ala or Gly;

X_{06} is an α -helix stabilizing residue or Lys;

X_{07} is an α -helix stabilizing residue, Trp or His;

wherein at least one of X_{01} , X_{02} , X_{05} , X_{06} or X_{07} is an α -helix stabilizing residue, and wherein at least one of said α -helix stabilizing residues is Aib, Ac₃c, Ac₄c, Ac₅c, Ac₆c, or Deg.

2. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) AlaValDegGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 37);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

3. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) AlaValAc₃cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 38);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

4. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) AlaValAc₅cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 39);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

5. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) DegValAlaGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 24);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

6. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) DegValDegGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 27);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

7. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) DegValAc₃cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 40);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

8. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) DegValAc₅cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 41);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

9. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) DegValAibGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 42);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

10. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) Ac₃cValAlaGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 25);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

11. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) Ac₃cValDegGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ.ID. NO. 43);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

12. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) Ac₃cValAc₃cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 28);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts (a) or (b) ; or
- (d) N- or C- derivatives of (a), (b) or (c).

13. (currently amended) The peptide of claim 1, wherein said peptide is selected from:

- (a) Ac₃cValAc₅cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO.44);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;

(c) pharmaceutically acceptable salts (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

14. (original) The peptide of claim 1, wherein said peptide is selected from:

(a) Ac₃cValAibGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 45);

(b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;

(c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

15. (original) The peptide of claim 1, wherein said peptide is selected from:

(a) Ac₅cValAlaGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ.ID. NO. 4);

(b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;

(c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

16. (original) The peptide of claim 1, wherein said peptide is selected from:

(a) Ac₅cValDegGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 46);

(b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;

(c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

17. (original) The peptide of claim 1, wherein said peptide is selected from:

(a) Ac₅cValAc₃cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 47);

(b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;

(c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

18. (original) The peptide of claim 1, wherein said peptide is selected from:

(a) Ac₅cValAc₅cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 29);

(b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;

(c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

19. (original) The peptide of claim 1, wherein said peptide is selected from:

(a) Ac₅cValAibGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 15);

(b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12, or 1-13;

(c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

20. (original) The peptide of claim 1, wherein said peptide is selected from:

(a) AibValDegGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 48);

(b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;

(c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

21. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) AibValAc₃cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ.ID. NO. 49);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

22. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) AibValAc₅cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 50);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

23. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) Ac₅cValSerGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 51);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

24. (original) The peptide of claim 1, wherein said peptide is selected from:

- (a) Ac₅cValSerGluIleGlnLeuMetHisAsnLeuGlyLysHis (SEQ. ID. NO. 52);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12, or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

25. (currently amended) The peptide of claim 1, wherein said peptide is selected from:

- (a) Ac₅cValAlaGluIleGlnLeuMetHis (~~part of~~ amino acids 1-9 of SEQ. ID. NO. 4);
- (b) pharmaceutically acceptable salts thereof; or
- (c) N- or C- derivatives of (a) or (b).

26. (original) A biologically active peptide consisting essentially of the formula selected from:

- (a) X₀₁ValX₀₂GluIleX₀₃LeuMetHisX₀₄X₀₅X₀₆LysX₀₇ (SEQ.ID.NO. 5);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12, or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N-or C-derivatives of (a), (b) or (c);

wherein:

X₀₁ is α -helix-stabilizing residue, Gly, Ser or Ala;

X₀₂ is α -helix-stabilizing residue, Ala or Ser;

X₀₃ is Ala, Gln or Asn;

X₀₄ is Ala, Gln, Asn, Har or Arg;

X₀₅ is an α -helix stabilizing residue, Ala or Gly;

X₀₆ is an α -helix stabilizing residue or Lys;

X₀₇ is α -helix stabilizing residue, Trp, or His;

wherein at least one of X₀₁, X₀₂, X₀₅, X₀₆ or X₀₇ is an α -helix stabilizing residue,
and wherein at least one of said α -helix stabilizing residues is Aib, Ac₃c, Ac₄c, Ac₅c, Ac₆c,
or Deg.

27. (original) The peptide of claim 26, wherein said peptide is selected from:

- (a) Ac₄cValAibGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 7);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives (a), (b) or (c).

28. (original) The peptide of claim 26, wherein said peptide is selected from:

- (a) Ac₆cValAibGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 8);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives of (a), (b) or (c).

29. (original) The peptide of claim 26, wherein said peptide is selected from:

- (a) Ac₅cValAc₄cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO.9);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or
- (d) N- or C- derivatives (a), (b) or (c).

30. (original) The peptide of claim 26, wherein said peptide is selected from:

- (a) Ac₅cValAc₆cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 10);
- (b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;
- (c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

31. (original) The peptide of claim 26, wherein said peptide is selected from:

(a) Ac₄cValAc₄cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 11);

(b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;

(c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

32. (original) The peptide of claim 26, wherein said peptide is selected from:

(a) Ac₆cValAc₆cGluIleGlnLeuMetHisGlnHarAlaLysTrp (SEQ. ID. NO. 12);

(b) peptides containing amino acids 1-9, 1-10, 1-11, 1-12 or 1-13;

(c) pharmaceutically acceptable salts of (a) or (b); or

(d) N- or C- derivatives of (a), (b) or (c).

33. (currently amended) The peptide of claim ~~1-or-26~~, wherein said peptide is labeled with a label selected from the group consisting of a fluorescent label, a chemiluminescent label, a bioluminescent label and a radioactive label.

34. (currently amended) The peptide of claim ~~1-or-26~~, wherein said peptide is labeled with ¹²⁵I.

35. (currently amended) The peptide of claim ~~1-or-26~~, wherein said peptide is labeled with ^{99m}Tc.

36. (currently amended) A pharmaceutical composition comprising the biologically active peptide of claim 1 ~~or 26~~, and a pharmaceutically acceptable carrier.

37. (currently amended) A method for treating mammalian conditions characterized by decreases in bone mass, said method comprising administering to a subject in need thereof an effective bone-mass increasing amount of ~~[[a]]~~ the biologically active peptide of claim 1 ~~or 26~~.

38. (currently amended) A method for treating mammalian conditions characterized by decreases in bone mass, said method comprising administering to a subject in need thereof an effective bone mass-increasing amount of a composition comprising ~~[[a]]~~ the biologically active peptide of claim 1 ~~or 26~~ and a pharmaceutically acceptable carrier.

39. (currently amended) A method for determining rates of bone reformation, bone resorption and/or bone remodeling comprising administering to a patient an effective amount of ~~[[a]]~~ the peptide of claim 1 ~~or 26~~ and determining the uptake of said peptide into the bone of said patient.

40. (original) The method of claim 37, wherein said condition to be treated is hyperparathyroidism.

41. (original) The method of claim 37, wherein said condition to be treated is hypercalcemia.

42. (original) The method of claim 37, wherein said effective amount of said peptide for increasing bone mass is from about 0.01 $\mu\text{g/kg/day}$ to about 1.0 $\mu\text{g/kg/day}$.

43. (original) The method of claim 37, wherein the method of administration is parenteral.

44. (original) The method of claim 37, wherein the method of administration is subcutaneous.

45. (original) The method of claim 37, wherein the method of administration is nasal insufflation.

46. (original) The method of claim 37, wherein the method of administration is oral.

47. (currently amended) The method of making the peptide of claim 1-~~or 26~~, wherein said peptide is synthesized by solid phase synthesis.

48. (currently amended) The method of making the peptide of claim 1-~~or 26~~, wherein said peptide is synthesized by liquid phase synthesis.

49. (currently amended) The method of making the peptide of claim 1-~~or 26~~, wherein said peptide is protected by FMOC.